



## **Reply Comments of Paul Milgrom and Gregory Rosston**

(FCC Docket AU 06-30)

We previously submitted comments in this proceeding. In these reply comments, we reiterate our initial positions and respond to some of the comments that advocate the revelation of bidder identities during the auction.

Generally, we reaffirm that good auction design is important for two reasons. First, good design can lead to an efficient assignment of licenses in the auction itself. Experience both in the U.S. and in other markets is that spectrum resale after-markets, while important, cannot correct resource allocation errors quickly and at low cost. Delays in assigning spectrum to its most valuable uses are costly in terms of consumer welfare. Second, good auction design can increase the government's revenue both by avoiding strategic manipulations and explicit or implicit collusion and by encouraging the rapid assignment of licenses to their highest value uses.

We also reaffirm our claim that it would be both feasible and efficiency-enhancing for the FCC to run separate sequential simultaneous multiple round (SMR) and simultaneous multiple round package bidding (SMR-PB) auctions for the licenses in this band. For the reasons we described previously, this solution would be better than the FCC's proposal to run the two different types of auctions at the same time. It also could both increase efficiency and reduce time-to-completion compared to running a single SMR auction covering all 1,122 licenses.

The FCC asked for comments on a proposal to refrain from disclosing bidder identities during the course of the auction. As we discussed in our initial comments, there are advantages and disadvantages to balance in deciding about this disclosure policy. Although we both favored the disclosure of bidder identities for the initial FCC auctions more than a decade ago, we believe that the circumstances have changed sufficiently since that time that the balance has shifted. The benefits of revealing bidder identities in terms of allowing more accurate value assessments by bidders during the auction are now outweighed by the disadvantage they bring of enabling retaliation strategies and related bid signaling strategies. There is little evidence or logical argument to support the idea that retaliation and related signaling strategies can be controlled by the auction rules or by antitrust enforcement. At the same time, there is good reason to believe that such strategies reduce both the efficiency of license assignments and the government's auction receipts.

Most commenters who might be potential bidders objected to the suppression of bidder identities. There are at least two possible ways in which a potential bidder could be harmed by the suppression of bidder identities. One is that the bidder suffers from the real efficiency loss resulting from being unable to adjust bids knowing the identities of possible future competitors or partners. The second is that revelation of bidder identities enables strategies that lead to lower license prices for bidders in the auction while simultaneously distorting license assignments. The first bidder harm bears weight in a policy analysis; the second does not.

US Cellular, T-Mobile and other commenters discuss the value of the information inferred from others' bids, the relevance of the identities (and technology choices) of potential service competitors to one's own bids, and the importance of knowing the identities and technology choices of the likely neighboring service providers. We agree that those are real concerns and that revelation of bidder identities can provide valuable information. However, unlike the situation for the early spectrum auctions, there are now a number of competitors in each market – a condition that we expect will continue. Also, radio technology has advanced substantially since the initial PCS auctions, reducing the usefulness of forecasting technology choices from bidding behavior. Both of these factors imply that knowing the likely identity of the winners of specific licenses is less important today for assessing valuations than it was in the first PCS auctions, so revealing bidder identities has become less socially valuable than it was in the past. The remaining value needs to be weighed against the detrimental effects from increased retaliatory bidding and related bid signaling that are enabled by revealing bidder identities.

There are other arguments that were made regarding revelation of bidder identity whose merits we challenge.

First, some concern has been expressed about the validity and credibility of the auction if the information is not revealed during the course of the auction. If all bids including bidder identities are revealed during the course of the auction, then any mistakes that the FCC might make could be caught and corrected immediately when they occur (Declaration of Peter Cramton, para 9. attached to Comments of T-Mobile.) Although it is routine in many auctions for bidders to maintain anonymity, such concerns could not be dismissed in the early auctions, before the FCC had established its track record as an auctioneer. To assess the significance of the objection in the current environment, the FCC should determine the frequency of mistaken bid reports in recent FCC auctions. If such mistakes are very rare, then concerns about transparency should not constrain this decision. In any event, the entire bid history should be revealed at the end of the auction to allow bidders to audit the accuracy and consistency with which the auction rules were applied.

Second, there is concern that there may be leaks of information or that bidders will spend large amounts of time trying to infer bidder identities through bidding behavior. Of course, efforts should be made to minimize leaks.<sup>1</sup> Some have alleged that the threat of

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<sup>1</sup> We note that in auction #1, the FCC did not reveal bidder identities, yet some bidders were able to infer the identities of bidders. As we stated, much has changed since then. That auction was conducted in a



even small amounts of information leakage is ample reason not to withhold bidder identities: “99% success ends up being no success at all” (Comments of Colts Neck, p-16). We disagree. The advantage of concealing identities is to prevent retaliatory strategies. In a typical retaliatory strategy, a bidder repeatedly punishes competing bids on one license with bids to raise the price on another license on which the competing bidder is the likely winner. Executing that strategy requires the retaliating bidder to repeatedly identify the offending competitor and to make its own identity known in its retaliating bid. This strategy is hardly feasible without very good information about bidder identities. Contrary to the quoted objection, occasional leakages barely impact the effectiveness of concealing bidder identities as a countermeasure to retaliatory strategies. For example, it is sufficient that a bidder who wishes to keep some of its bids anonymous during the course of the auction has a good chance to accomplish that. Bidders who seek to avoid retaliation would have a strong interest in securing the confidentiality of those particular bids and there is a clear public interest in making that possible.

As a last resort, if the FCC determines that sufficient information has been inadvertently revealed that it would cause problems, it should retain the ability to return to its previous rules mid-auction and to reveal the entire auction information to that point and follow historical procedures from that point forward. With that provision, any risk would be minimized, and bidders should be able plan accordingly.

With respect to the argument that bidders would spend time and resources trying to infer bidder identities, (Declaration of Peter Cramton, para 14. attached to Comments of T-Mobile.), that argument is not compelling from a public interest perspective. With revelation of bidder identities, bidders spend time and resources evaluating the strategies of particular competitors in order to predict what their rivals might do and then implementing bidding strategies tailored to specific rivals. Without bidder identity revelation, they will not spend that time and those resources.

Third, Columbia Capital and MC Venture Partners cite a passage from the economics textbook by Samuelson and Nordhaus to support their claim that “a fundamental principle of economics is that perfect competition requires perfect knowledge among all competitors.” This is simply wrong. According to the cited passage, “the invisible-hand theory assumes that buyers and sellers have full information *about the goods and services they buy and sell.*” (Comments of Columbia Capital and MC Venture Partners, p-8, *emphasis added*). The careful language in the Samuelson-Nordhaus text could be used correctly to urge the FCC to be very clear about the rights and obligations associated with each license in order to promote a competitive outcome. The language does not, however, say there is any assumption of perfect information *about competitors’ identities* and, in fact, the theory of perfect competition entails no such assumption. Yet the issue being discussed is precisely about what information to reveal about competitors’ identities. Columbia Capital and MC Venture have failed to provide any valid support for their mistaken position.

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single room where all bidders were present and other bid information such as a time stamp and bidder id numbers were revealed. Current auctions are conducted remotely and we presume that the FCC would not provide time of bid submission or bidder id information.

US Cellular, citing a paper by Milgrom and Weber (1982), says that sellers generally gain by revealing information. (Comments of US Cellular, p-21) The Milgrom-Weber propositions, which we know very well, analyze the effects of the seller revealing information *about the value of the item(s) being sold at auction* – not information *about competitors' identities*. In principle, revealing bidder identities reveals both *value information* that improves the accuracy of bidding and *strategic information* that enables retaliatory bidding. The decision about whether to reveal bidder identities hinges on the balance of these to effects. We reiterate our view that the relative importance of the value information in bidder identities has been declining over time so that the balance has now shifted in favor of concealing bidder identities.

After reading the arguments, while we still acknowledge tradeoffs in the bidder identity decision, we find no evidence and little argument to counter our position on the changing balance. The strategic risks created by revealing bidder identities still appear to outweigh the costs of withholding identities until after the close of the auction. The FCC should follow through with its proposal to withhold bidder identities.

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